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ORIGINAL DEPARTMENT.

LECTURE.

DIAGNOSIS OF DISEASES OF THE EAR.

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"Language is the great instrument through the possession of which man is most distinctly separated from the lower animals, through use of which he is able to share the experience and knowledge of other individuals of his time, as also those of past generations; without which each man would, like the lower animals, be limited to his instinct and to his own particular experience."*

The subject of our Lecture naturally divides itself into—First, An abstract of the history of the means employed in diagnosis of diseases of the ear. Second, What are our present improved methods of diagnosis? Third, Test of the hearing by means of König's rods. Fourth, What are the tones of the human voice, and how are we to apply them in the diagnosis of diseases of the ear?

About the middle of the sixteenth century Capivacci, an Italian physician, was the first to describe a method of making a diagnosis between the diseases of the peripheric and of the central parts of the organ of hearing, as follows: "One end of an iron rod, an ell in length, was placed between the teeth of the patient, while the other was placed upon a keyed musical instrument. If he could distinguish the tones produced by the vibrations of the keys of the instrument, his deafness depended upon some lesion of the membrana tympani; if not, it was an affection of the nerve."

A writer by the name of Hercules Sarsonia found that patients who had disease of the auditory nerve always spoke in a very low tone, because the nerve supplying the tongue was a branch of the fifth pair, which was affected.

A great step in our knowledge of the appearance of the interior of the ear was by the use of the aural speculum, which facilitated the diagnosis of foreign bodies in the ear, as well as changes in the meatus, alterations in the appearance of the drum, etc.* This was in 1664, and was invented by the celebrated Fabricius Hildanus, who published a description of it; he stated it could also be employed in dilating the external meatus; but it is now superseded by the more simple modification of ear specula of Gruber and Wilde.

To Marcus Banze we are indebted for the first description of a perforated membrana tympani, and how to relieve it by an artificial membrana tympani, namely, an ivory tube, the end of which was covered by a bit of pig's bladder.

To Fabricius Hildanus we owe the first described case of polypus of the ear, its appearances, symptoms, and the operation for its removal, published in 1604.

In the latter half of the seventeenth century Thomas Willis proved that total deafness does not follow the destruction of the membrana

* Helmholtz.

* See plates in the work of Fabricius Hildanus, Opera quæ exstant omnia, Franco. 1646, p. 17.

tympani. He also made some observations on deaf persons, whose hearing was better in a noise, and gives an illustration of a woman who could only hear her husband when a servant was beating a drum. This form of disease was called "Paracusis Willisina," and was supposed to be owing to the relaxation of the membrana tympani, the normal tension of which was restored by the noise.

In 1742 great progress was made in our knowledge of diagnosis of diseases of the ear, by Valsalva, who gave the details of cases in which the membrana tympani had been restored; he also recognized an exostosis of the base of the stapes as a cause of deafness. He gave us, also, the Valsalvian experiment of forcing the air through the Eustachian tube by a quickened expiration with the mouth and nostrils closed, and he directed this method for cleansing the middle ear of pus, serum, etc.

He proved that the cavity of the tympanum is connected with the cells of the mastoid process, either by the Eustachian tube or by a perforated membrana tympani. In a case reported, he injected the cavity of the tympanum, through a fistulous opening in the mastoid process.

He also proved that stoppage of the Eustachian tube is a cause of deafness, also described the attachment of the tensor-tympani muscle.

His work on the ear passed through five editions. He devoted sixteen years to the study of anatomy of the ear, and dissected more than a thousand heads.

In 1735, Guyot, a postmaster of Versailles, whose hearing was impaired, devoted much time and attention to the subject. He introduced an angular tube through the mouth, and injected his Eustachian tube, the orifice of which must have been much dilated. The distal extremity of the instrument was attached to a leathern tube, which was connected with the reservoir of two small pumps, by means of which he forced fluid through the tubes, and washed the Eustachian tube.

About fifteen years later (1741), Archibald Cleland, an English physician, revised the operation, but introduced the tube or catheter through the nose. This same individual invented a speculum, with a three-inch convex lens, and a wax-light attached, as a means of illuminating, by reflected light, the meatus and membrana tympani; the ancient plan being simply to place the patient opposite a direct light. The now well recognized operation of paracentesis of the membrana tympani was first attempted on dogs, by Willis and Valsalva, and was first performed for the relief of deafness by a Parisian surgeon, Eli (about 1760).

In 1774, J L. Petit, a surgeon, in his work on surgical diseases, states that in caries of the mastoid process it is advisable that this part should be cut down upon and trepanned, and gives examples where it was performed with success.

About the year 1800 the knowledge of the diagnosis of diseases of the ear made considerable progress. Sir. Astley Cooper, that bright surgical luminary, devoted considerable attention to the subject, and carried out the suggestion of Julius Busson, and Sir Everard Home, for the performance of the operation of the perforation of the membrana tympani, which the great surgeon accomplished with success (upon the living subject), in four cases of closure of the Eustachian tube, with deafness, the result of ulcers in the throat, from scarlet fever, smallpox and syphilis. About this same period, Saunders, of London, in his work on diseases of the ear, advised paracentesis of the membrana tympani in cases of acute suppuration of the tympanum,* an operation which has been revived by Schwartze, in our day, who also showed that disease of the brain is very apt to follow neglected chronic suppuration of the middle ear.

We have now arrived at the century in which we live, and shall describe the mode of diagnosis as practiced at the present time, showing the advantages gained by paying more attention to the tones of the human voice, etc.

In 1841 an important diagnostic and curative fact was discovered, accidentally, by a gentleman of New York (who had a perforation of his membrana tympani, and was very deaf), namely, that if he introduced "a roll of paper, previously moistened by saliva, to the bottom of the passage," it would produce in his ear a degree of hearing quite sufficient for all ordinary purposes. This was shown to Dr. Yearsley, of London, who substituted cotton-wool for the paper, and Mr. Toynbee a thin disk of vulcanized rubber, which has been modified by using a tube of the rubber, with a disk of the same. The improvement is now supposed to be due to the restoration of the interrupted

* "The Anatomy of the Human Ear, etc." Edited by Wm. Price, M. D. Philadelphia, 1827.

connection of the bones of the ear with the fenestra ovalis and labyrinth.

Diagnosis of Diseases of the Ear.

In a synopsis of the diagnosis of diseases of the ear we should give—First, A record of the history and general condition of the patient. Second, An examination of the external ear, auditory canal, and anterior surface of the membrana tympani. Third, The various tests applied to the tympanum, Eustachian tube, and mastoid cells Fourth, The various means employed to diagnose the condition of the labyrinth, semicircular canals and cochlea, with the auditory nerve distributed to these parts.

First. In our record of the history and general condition of the patient, we must give name, age, occupation, residence, married or single, condition of health, ear affected, right or left, or both; ear most affected, appearance of the meatus, membrana tympani, and Eustachian tube; presumed cause, if formerly affected, as to the existence of pain, noises or discharge? The distance at which an ordinary watch is heard to tick opposite each ear, by closing the opposite ear with the finger or plug of india-rubber, and approaching the ear gradually. If the watch cannot be heard in contact with the auricle, try it between the teeth, or on the vertex or forehead. If not heard, employ a tuning fork, steel or iron rod, struck and made to vibrate when suspended by a silk string. Then, turning the patient's eyes away, test the perception of speech, syllables, words or sentences, repeating in four grades of speech, or intensity of tones, loud, medium, conversational and whisper. Deaf mutes must be tested in the dark by the same methods. Determine if there are any obstructions to the passage of air or water through the nose or pharynx; if there be any disease of the throat, hoarseness, loss of voice, or difficulty in swallowing; if the patient has ever suffered from any severe illness; if any other member of the family was deaf, or any relative; any facts bearing upon the case.

Diagnosis—Previous Treatment—Prognosis—Notes of Treatment.

For the last nineteen years we have been in the habit of recording the acuteness of hearing by simply using "H. D." for hearing distance, by numbers placed after right or left ear, but after the publication of the method of Dr. J. S. Prout,* in 1872, we followed that for a time, finally substituting the mode advised by Professor H. Knapp,† which has the advantage of combining the ordinary tests in a method, and recording the results in a much more simple but yet comprehensive manner.

My ordinary watch is heard to tick at thirty-six inches, by the majority of persons between twenty-five or thirty years of age. A still louder watch is heard at thirty feet. It is important to have both tests for those persons who, not hearing the lower ticking watch, will detect the sound of the louder one. Our mode is to designate whether the test is in inches or feet. The watch employed by Dr. Knapp, in his consultation room, by the majority of persons between thirty and forty-five years of age, is heard at a distance of ten feet from the ear. If the person hears this watch at 10 inches, it denotes his hearing power for noises h=$\frac{1}{10}$, *i. e.*, 1 inch, or normal. In all cases this cannot be done, as certain patients will not be able to hear the watch expressed by inches, while they can hear a watch of the intensity of thirty-five or forty feet normal distance. Children, as a rule, hear the watch more acutely than adults, and persons from the age of twenty-one to forty-five much better than after the age of fifty; while at seventy almost all persons become more or less deaf, and such individuals, owing to the density and friability of the cranial bones, hear the watch better on the temple or mastoid process. If a patient hears a watch of ten inches' normal hearing distance at two inches, his hearing is only one-fifth of the normal standard, but instead of writing h=$\frac{1}{5}$, it is preferable to write h=$\frac{2}{10}$, because this, at the same time, shows how the value is obtained, and can be read in the words at the beginning of the sentence. Dr, Knapp prefers to use the numbers in such a way that they not only show the fraction of hearing acuteness, but also the mode of examination: for instance, if the watch is heard only at one inch, he writes h=$\frac{1}{12}\frac{1}{10}$, and does not reduce the fraction to its simplest expression, as, for instance, h=$\frac{2}{12}\frac{3}{10}$=$\frac{1}{10}$, which shows that the patient whose hearing acuteness for noises is

* Dr. Prout uses H. (horologium) for the watch, V. (vox) for the spoken voice, and V. S. (vox susurrata), or simply S. (susurrus), for the whispered voice. He uses the following abbreviations:—P. A., potentia auditis, for hearing power. A. D. and A. S., auris dextra and auris sinistra, for right ear and left ear, and expresses the hearing distance in inches.

† Dr. H. Knapp's Archives of Ophthalmology and Otology Vol. III, No. 1, 1873, p. 220.

only $\frac{1}{40}$ of the normal standard hears a watch of ten inches' hearing distance at three feet. Fractions of an inch, he places either in the numerator, as $h=\frac{1}{12}:\frac{2}{10}$, or leaves only the unit in the numerator, and places all the other numbers in the denominator, as $\frac{1}{2\ 12\ 16}$, both of which show at once that the watch is heard at half an inch.

In the inspection of the auditory canal and anterior surface of the membrana tympani, the most important instrument is the round ear speculum, modified by Professor Gruber, of Vienna, and the concave mirror of Professor Von Tröltsch. The former are made of German silver, three or four in number and of different sizes. On introducing the speculum, the end will come in contact with the lining membrane of the meatus, and by careful movement show its surface by direct light, and with it we can determine if there is any foreign body, or an excess of altered cerumen. The canal is somewhat tortuous, winding first a little upward and downward, inward and directed forward, so that, if we desire to examine the membrana tympani, we press the speculum well into the passage, against the outer part of the posterior wall, and draw the auricle upward and backward with the left hand, by careful rotation, until secure without being held. When we have taken a general view, we then take hold of the speculum with the thumb and index finger, so as to turn it, to obtain a view of the various parts of the membrana tympani. Having now the speculum under full control, and the patient between us and a good bright window, with ordinary daylight, the bright rays of light are reflected into the membrana, from a concave mirror of about two and a half to three inches in diameter, and a focal distance of from five to six inches. Instead of daylight many good aural surgeons resort to artificial light, argand gas burner, student's lamp, or Tobold apparatus*. If we desire to have several to look at the membrane, it is well to use a plain mirror and sunlight. The first object which is seen, in looking at a healthy membrana tympani, is the handle of the malleus, running like a thin streak, of the color of bone, from above downward to the middle of the membrane. Then the color of the membrane is to be carefully noted; this will be translucent and of a neutral gray, opaline by daylight and yellowish gray by artificial light.

The next point is to notice the cone of light, or umbo, which is situated in front of the malleus, with the apex of the cone at the lower end of the malleus. If the membrane is diseased, it may be abnormally flat, oblique or concave. (The angle formed by the membrane with the upper wall of the tympanum, in health, is, on an average, 140°.)

The position of the handle of the malleus is often a guide, which, when the ear is much diseased, or from want of air on the opposite side, by closure of the Eustachian tube, or from labyrinthine pressure, may be very much drawn inward, or twisted, and so appear broader and shortened in perspective.

In chronic catarrh, one of the most frequent forms of disease of the ear, accompanied with or without obstructed Eustachian tube, the natural curvature of the membrane is lost, and there is a marked concavity, the membrane losing its transparency and becoming whitish gray, and entirely opaque, so that the handle of the malleus cannot be seen. If, however, there is acute catarrh, the membrane presents a distinct pink hue, due to the congested mucous membrane of the tympanum shining through it, or its own vessels, surrounding the malleus, may be engorged.

If we have simple closure of the Eustachian tube, which now and then opens with a sudden crack, the membrane is not so concave, and the malleus will be seen displaced or turned slightly backward.

If the Eustachian tube is too patulous, there is but slight concavity of the membrane, with unnatural ringing of the voice in the ear and undue perception of sounds in the throat.

In certain forms of deafness, both in children and adults, the membrane may be very concave, as from obstruction of the tube. When, on examination with the catheter or Politzer's air douche, it is found not closed, nor even narrowed, but the nostrils obstructed by the swelling of the mucous membrane and excessive secretion, or the tonsillar region swollen so that respiration is carried on with difficulty, and the air, during inspiration, is drawn out of the tympanum, the attention of the surgeon should be given to restore the whole naso-pharyngeal region to a healthy condition. We know from personal experience that this mode of treatment will relieve the patient. The superior border,

* For a description of these various forms of illuminating apparatus, see author's "Manual of Diseases of the Ear," published by J. B. Lippincott & Co., Philadelphia.

and the thin portion above the short process, termed the membrana flaccida, being very liable to assume a morbid condition, care must be taken to notice thickening, or the taking place of a perforation, which would, perhaps, expose the neck of the malleus or reveal the existence of a red mass of granulations. In the thin portions of the membrane, bulgings of the membrane may occur from a too frequent and forcible use of the air douche, or blowing with mouth and nose shut, also from collections in the tympanum of mucus, serum or pus.

If there is liquid secretion in the middle ear it forms distinct bubbles, which can be seen on the inner side of the membrana tympani, of a dark-green or yellow color, changing their positions with the movement of the head. The membrane may again be seen flaccid, or attached to the promontory, or bound by bands of lymph. In these latter cases the Eustachian tube is generally obstructed.

By means of Siegle's pneumatic speculum we can determine the various degrees of tension in the different parts of the membrana tympani, and assist in determining their presence, and removing adhesions, and preventing collapse. This instrument is an ordinary speculum, made of vulcanite, the wider end of which is enlarged into a box, covered by a glass, through which the membrane is observed, while the small end is surrounded by india rubber, which can be made larger or smaller by a small ring cut off a piece of rubber tubing, so that it can be fitted closely, even air-tight, into the meatus. The air can be exhausted by the mouth or a syringe fitted into the tube which is connected with the interior of the speculum, and by means of a small stop-cock the air is prevented from entering, except in such quantities as may be required. By its use we can sometimes diagnose whether tinnitus, or noise, is in the external or middle ear, or is of cerebral origin, or the result of pressure exerted upon the labyrinth.

If the membrane has become perforated, this is readily seen, if it be large; and if small proven by desiring the patient to shut his mouth and nose and force the air, accompanied with a discharge of mucus or pus, which will form a small bubble at the orifice of the perforation. By means of a piece of rubber tubing, passed from the patient's ear to the surgeon's, a hissing or bubbling sound can be heard, which will confirm the diagnosis.

The following conditions may accompany perforations, out of which may spring a mass of granulations, with a discharge of pus or a polyp from within the tympanum, and just appearing on a level with the orifice. Polypi may have their origin near to the membrane, and not be attached to it. There is almost always a discharge of pus, with more or less blood, from the ear. If blood is discharged from the ear, a careful examination should be made, as it may either come from an injury, a polypus, or diseased bone. Often our only true test is the microscope, which will show us the broken-down bone, pus, or simple blood globules. Blood is also seen when the disease involves the temporal bone, causing ulceration or inflammation of the mastoid cells, the extension of the disease from the middle ear, especially where there is perforation of the drum membrane.

The diagnosis of diseases of the ear is facilitated by means of rhinoscopy and the various tests applied to the middle ear, Eustachian tube, etc.

Anterior Rhinoscopy.

By the use of the bivalved ear speculum, or ordinary polypus forceps, the mucous membrane of the inferior turbinated bones can be seen. A still better plan is to employ a double-valved speculum, so as to perform anterior rhinoscopy. As this instrument holds itself in the nose by a special arrangement, both hands of the operator are free, and with a hand or head mirror the nasal aperture can be illuminated much more perfectly.

By means of posterior rhinoscopy we can see into the pharyngeal openings of the Eustachian tubes, the vault or roof of the pharynx, and the upper portion of its posterior and lateral walls. Diseased abnormal enlargements of the follicles of the mucous membrane may be seen on the surfaces of the nares, vomer, and turbinated bones extending to the pharyngeal orifices of the Eustachian tubes. The color of these vegetations is a deep red at the base, shading off to a lighter pink, or to a yellowish cast at the apex.

In the operation of posterior rhinoscopy, the light from a good lamp is thrown rather lower in the fauces, so that a small mirror, previously warmed, placed with its face upward behind the uvula, then by sliding or inclining the mirror laterally the Eustachian orifices are shown by this means.

Diseased Conditions of the Eustachian Tubes.

1. The Eustachian tubes may be entirely obliterated.

2. There may be œdematous swelling of the parts.

3. Granulations or ulcerations near the orifices.

4. A want of power to close the orifice, by too patulous a condition.

5. A collapsed condition of the lips of the tube.

We have already referred to the appearance of the membrana tympani, when the Eustachian tube is closed entirely, or in part, or when there is a want of power in the Eustachian tube, or a flaccid condition of the parts.

The three following methods are employed to determine and overcome these various conditions:—

First. The simple inflation of the ears by the act of swallowing, the mouth and nose being closed, or, as it is termed, Valsalva's method, is often satisfactory in determining whether air passes freely into the Eustachian tube, by listening (as before stated) with an india-rubber tube, one end in the patient's ear, and the other in that of the surgeon; both patient and surgeon notice the sound at the same time the air enters. If this is not successful, we resort to Politzer's air bag, or douche, which is an india-rubber bag, to which is attached a small elastic tube and nozzle, which is introduced into the nose of the patient, who, having taken a little water into his mouth, holds it there until he receives the signal to swallow, at which moment his mouth is shut and his nose must be compressed, at the same time holding the nozzle in the nostril while the bag is suddenly compressed. This act of swallowing opens the Eustachian tube, while the air is being forced into the upper part of the pharynx, the velum plati raised, and the air passes into the middle ear. If these means do not open the tube, the Eustachian catheter is employed, being introduced through the nose, back to the pharynx, drawn a little forward and outward, and turned into the orifice of the tube. Then by blowing air into the middle ear, we can determine, comparatively, the condition of the tube. By this same avenue, we also introduce medicated vapors, or bougies to dilate a strictured portion, or make a new entrance. The sound of the air passing through a healthy tube, into an equally healthy tympanum, and distending a healthy membrana tympani, is like blowing into a small bladder. When the air is introduced by a catheter, there is a blowing or rustling sound. If the tube is diseased or shut up, from cold, the entrance of the air is prevented or followed by the sound of a sharp crack. If there is much secretion, the introduction of the air gives a slight squeak, or a distinct gurgling, or bubbling noise. If there is an unnatural dryness, then the sound will resemble a harsh dry murmur. If we have not introduced the catheter into the tube, we have a distinct rough sound, not, however, advancing toward the ear from the throat.

We now come to the fourth part of our subject, viz.: the various means which have been employed to diagnose the diseased condition of the labyrinth, semi-circular canals, cochlea, and auditory nerve, which is distributed to these parts. When deafness occurs suddenly, with apoplectiform symptoms, in a previously healthy person, and these symptoms disappear while the deafness remains, the seat of the disease is usually found in the labyrinth. This same result is produced by severe injuries of the head, causing fracture of the petrous portion of the temporal bone, with consequent inflammation of the membranous labyrinth, which is firmly united to the bony labyrinth.

"Ménière's disease," or labyrinthine vertigo, in which there is found bloody exudation in the semi-circular canals and vestibules, is diagnosed by the following symptoms: deafness and tinnitus aurium, or noises in the ear,* headache, paleness of the face, fainting, obscuration of the field of vision, vertigo, nausea, vomiting, and disturbance of equilibrium. *In chronic aural catarrh*, the whole chain of the above symptoms may occur as an acute complication, caused by exposure, and may disappear and leave the disease in its previous condition, or perhaps worse. The diagnosis of inflammation of the labyrinth in ear disease is mainly supported by the symptom of permanent irritation and paralysis of the auditory nerve. Secondary inflammation of the labyrinth is to be assumed when, in the general diseases enumerated above, timitus aurium and deafness, without symptoms of otitis media, are well marked.

A discharge from the ear should always be inquired about, if there is epilepsy and epilepti-

*The importance of this symptom in diagnosis of diseases of the ear, and as a disease itself, is fully treated in a 16mo, published by J. B. Lippincott & Co., 1875.

form seizures. There is a persistent hemiplegia in some children, with a discharge from the ear.

Prof. Gruber has found that in some cases of strumous enlargement of the glands there were marked symptoms of congestion of the labyrinth. This is also stated to be the case in the later stages of phthisis. Irritation from worms has also caused irritation of the labyrinth and deafness as a consequence, while the removal of said irritation has resulted in the restoration of the hearing.

Ophthalmoscopic Examination of the Eyes in Diagnosis of Disease of the Ear.

In the examination of the eyes by means of the ophthalmoscope, in cases of disease of the ear of a nervous character, there was found, by Dr. Bader and others, with few exceptions, hypermetropia, and this he considered due, not to flatness of the eyeball, but to a certain paralysis of the third nerve. According to Prof. Knapp, glaucoma of the eye is, perhaps, a counterpart to "Ménière's Disease." The deafness which is mostly total, occurring in the course of acute meningitis, and sporadic and epidemic cerebro-spinal meningitis (which, at the present day, after scarlet fever, is the most prominent cause of post-natal deafness), a disease involving the labyrinth, cochlea and auditory nerve, frequently attacking the eyes as purulent choroiditis. Constitutional syphilis furnishes a valuable example in a case (reported by Dr. Knapp), showing a pure attack of Ménière's disease in a patient who soon after had an analogous affection of his eyes. In exudative irido-choroiditis, chiefly of a serous character, it may be inferred that the labyrinthine affection of the ear is also a serous exudative inflammation. Severe fevers, as, for instance, typhus, typhoid, congestive, puerperal, and yellow, with infantile convulsions, sunstroke, and pyæmia, are all apt to produce cerebral deafness, without changes in the membrana tympani and middle ear. This serous or hemorrhagic inflammation of the labyrinth is followed by thickening or atrophy of the membranous labyrinth, with or without atrophy of the auditory nerve.

The deafness resulting from the use of excessive doses of quinine we have rarely seen, indeed, only one not well marked case, though our experience has been considerable.

The mechanical contrivances and artificial apparatus for testing the hearing distance do not express the delicate shades in pitch, intensity, and timbre, as the natural instrument, *the human voice*, nor in so varied a degree. Although the speech, on account of the great number of tones and the most varied pitch, intensity and timbre, cannot be made available with as much mathematical accuracy as the test types for determining the acuteness of vision, or the chemical reagents for analyses.

Test of the Hearing by Means of the Ticking of the Watch.

Of the value of this method almost all authorities are united that it has faults and deficiencies, and yet it is very useful employed as an auxiliary, and it could not be well dispensed with. The main objection urged against it is, that with the ticking of the watch we test the patient with but two tones of the whole scale, and those are neither very pure nor precise. The hammer or anchor strikes the cog-wheel, and by its impact calls forth two weak tones, which are intensified by the resonance of the case.

Test of Hearing by Means of the Tuning Fork.

We owe to Mach the first scientific application of the tuning fork in diagnosis, but it is to Leucæ we are chiefly indebted for a careful study of the reason why the tuning fork vibrating on the head is heard better if the meatus is closed; he ascribed it to a gentle pressure exerted on the labyrinth by the closure of the passage; others are of the opinion that the vibrations, which would otherwise escape through the meatus, are thrown back upon the tympanum and labyrinth, and so increase the hearing.

The tuning forks employed are of various forms and sizes; those made by Dr. König, of Paris, are considered very accurate and are largely used. They are fitted with movable clamps (by Politzer), which serve the purpose of giving various tones with the same fork.* Some are constructed with a small hammer attached, the force of the blow of which is estimated by a dial, so that the fork can be struck with a definite degree of force. A small pad or cushion is sometimes employed to strike the blow. The ordinary tuning fork "C" can be

*Dr. Albert Bing, assistant to the Otological Department of the General Hospital, at Vienna, uses sections of common rubber tubing, which ring-shaped pieces are slipped over each tine of the tuning fork, and by varying their positions they fully answer the purpose of the metal clamps. Dr. Bing has also invented a stop watch with a regulated tone and tick, which has many advantages as a means of diagnosis.

employed, and it will be found a useful instrument in assisting to confirm a diagnosis, more especially in distinguishing those caused by disease of the conducting media from those of the nervous structures; also in determining the vibratory and resonant conditions of the sound-conducting structures in chronic catarrh, etc. If the hearing is normal, the tuning fork should be heard outside of the meatus externus for a longer time than when pressed on the bridge of the nose, vertex of the head, mastoid process, or teeth, but when applied to these parts the sound should be increased, and should also return after it has ceased to be heard, by stopping the meatus.

The disadvantage of this method of testing the hearing is, that we subject the patient only to a single intense musical tone, the value of which unmusical persons cannot always appreciate and account for correctly.

Too much has been expected from the use of the tuning fork in diagnosis; still, it is not well to omit it in our examinations.

Tests of the Hearing by Means of König's Rods.

Before giving our experiments, it will be proper to state the results obtained by other observers. The discrepancy, in our opinion, can only be accounted for in three ways. First, variations in the sound-conducting portion of the auditory apparatus; second, defect, original or acquired, in the perceptive portion, and third, want of cultivation.

Savart fixed the lowest limit of the human ear at eight complete vibrations a second, by means of a toothed-wheel and an associated counter, and the highest limit at twenty-four thousand vibrations. Helmholtz has fixed the lowest limit at sixteen vibrations, and the highest at thirty-eight thousand. Vierodt gives the highest tone as forty-eight thousand, and Desprets as seventy-three thousand seven hundred single vibrations in the second. By means of a pendulum swinging a given distance and striking a steel König rod, a definite degree of intensity is obtained. With this instrument a series of experiments were made by Dr. C. J. Blake, of Boston, Massachusetts, to ascertain the average perceptive power in the normal ear, and this was found to vary considerably with the age; thus, at about the ages of twelve and thirteen years a tone of forty thousand nine hundred and sixty vibrations per second was heard at a distance of thirty-four feet; at the ages of from eighteen to twenty years the same tone was heard only at distances of from thirteen to sixteen feet; and at the extreme limit of thirty-four feet the tone of thirty-six thousand eight hundred and sixty-four only; at the ages of from twenty-eight to thirty years, at the extreme limit of thirty-four feet, only tones up to thirty-two thousand seven hundred and sixty-eight vibrations per second were perceptible; while above the age of fifty years the limit of perception at the same distance had still further diminished, and in a greater variety of degree.

In our experiments for the production of the musical tones, the steel rods of Dr. König, of Paris, employed, were made of choice white tempered steel, under the supervision of Dr. Clarence J. Blake. The rods are two centimeters in diameter and from one inch to four in length, of from twenty thousand vibrations per second to sixty thousand. They are suspended by means of fine wire, or string, or better, fine but strong silk thread. Vibration is produced by a stroke from a steel hammer. In each experiment the rod is held at a uniform distance from the ear to be tested. Before commencing our experiments on any individual we determined accurately the condition of his organ of hearing. Barometric pressure 30° and temperature 65° Fahr. With this arrangement of the rods the following were the results obtained by a series of experiments which were found to vary with the age and condition of the hearing apparatus of the individual :—

Age.	*Distance.*	*Number of Vibrations.*
15	35 feet	40,000
18	"	40,000
21	"	35,000
25	"	30,000
30	"	25,000
50	"	25,000
60	"	20,000

In only one instance did a trained musical ear hear sixty thousand vibrations in a second.

It will be seen by these and numerous other experiments which have been made, that the highest musical tone obtained in a normal, healthy ear, not specially trained, did not exceed, in any instance, a fraction over forty thousand vibrations in a second. Education of the ear and brain to the recognition of musical tones is as necessary as the training of the athlete to run, box, row, bat, or lift weights. Most wonderful instances of the power of the trained ear are found on record.

In every instance, when the individual experimented upon was fifty years of age, or over, there was found a change in the auditory, or sound-conducting apparatus, and even in the case of individuals who were from eighteen to thirty years old, it was rare to find both ears of the same power. In other instances, where there was no defect in the ear, there was found a want of musical perception (application).

A gentleman (Dr. J. Solis Cohen) who has given much study to sound, throat, vocal chords, etc., was desired by the writer to repeat his experiments with the rods, which he kindly complied with. On returning them, he stated that he could not hear a higher number than thirty-five thousand vibrations per second. I stated at once that there must be some defect, and expressed a wish to examine and test his hearing, never having done so before, and without knowing of any peculiarity in regard to his hearing. On examination, I discovered that in the right ear there was an opacity or thickening, on the inferior quadrant of the membrana tympani, and this was confirmed by testing his hearing by the watch (of thirty inches' normal hearing), when I found his right ear was less acute in hearing, by four inches. He then wrote for me the following note of his case, a copy of which I append.

"I have recognized for a long time, in delicate auscultations, that hearing in my left ear is little more acute than in my right, but I can hear the upper tones of the rod of thirty-five thousand vibrations, apparently as well with one ear as the other, the musical tone being distinct, though faint. In the rods of forty-thousand vibrations and upward, I can distinguish nothing but the thud. For ordinary purposes I am not conscious of any difference in hearing capacity, nor aware that my hearing is less acute than that of the average normal subject." *

This instrument of König's is of value in diagnosis, as was shown in the above case, and in many others, and will determine with great accuracy any deviation from the standard of health which we have determined, according to the age of the individual. It can be mounted on a stand and struck with a hammer, as in the case of the tuning fork, and will be found a useful addition to our mechanical means of diagnosis.

* Extract from "Transactions of the American Association for the Advancement of Science."

On the Perception of the Human Voice.

The first impression we receive is that the more or less deaf patient is able to answer our questions in an ordinary tone of voice. If he cannot hear us, or we have to elevate our voice to a loud tone, we at once make a diagnosis in our mind, and so register it; and if he speaks in a very low tone, we also draw certain evident conclusions from it, as to its nervous origin and his power of modulation. The consonants are the most difficult to hear by the diseased ear, the vowels being much more readily heard by the deaf patient, such as *a*, *e*, *i*, *o*, *u*. In cases of partial destruction of the membrane, the vowels were heard disproportionately better than the consonants, which were less distinctly heard in proportion to the size of the defect, and the better in proportion to the pitch of their ground-tone and the number of their harmonies; a rhythmical utterance diminished the difficulty.

On experimenting with an artificial meatus and membrane it was found that the resonance was much greater for the voice, and that partial destruction weakened and raised the pitch of the resonance, for the further reason that it possesses many sounds which are far weaker and more delicate than the tones of instruments.

The following experiments, to determine and confirm some of these points of hearing, were made on the healthy ear, in the open air, during the year 1874, at Russelton, Fauquier county, Virginia, under our directions, and with the assistance of three scientific friends. The situation was three and a half miles from Warrington, 1000 feet above the level of the sea. Temperature 70° Fahr. Pressure of barometer 30°. No excess of humidity. From the gate of an avenue of small trees, 233 yards distant, the vowels of the alphabet were heard in the following order:—*a*, 233 yards, most distinct and clear; then *o*, 230 yards; *e*, 220 yards; *i*, 220 yards; *d*, 200 yards; *g*, 150 yards; these experiments being repeated in a closed hall with the same results.

At 40 yards (the greatest distance at which the human voice is heard distinctly) we heard every word, although certain vowels could be heard at 600 yards.

Electricity in Diagnosis.

A diseased ear cannot be considered fully examined and the means for its cure exhausted, until the galvanic current has been used in

a scientific manner. It has been observed, both by ourselves and other careful observers, that a sensation of sound is perceived, even in the healthy ear, when one of the poles of a battery was placed in the auditory passage when filled with salt and water, and the other connected with different parts of the body.

Some recent writers are in doubt upon this subject, and state that this has not been proved to their satisfaction; and some recent experimenters attribute the subjective auditory phenomena observed by Brenner and others to stimulation of branches of the facial, and through this nerve to the action of the muscles of the middle ear, particularly the stapedius.

Dr. Poorten, in a review of the theory concerning the origin of the subjective symptoms consequent upon the application of the galvanic current, gives the results of experiments upon himself and others, and disproves the theory founded by Wreden upon the supposed action of the current upon the stapedius and tensor-tympani muscles. The experiments consisted in the use of Siegle's pneumatic speculum (before referred to), by which the membrana tympani was drawn outward, and traction made upon the tensor-tympani and ossicles, or, on the contrary, relaxation. Under these circumstances the galvanic current gave precisely the same reaction that it did before the use of Siegle's speculum. Dr. P. concludes that the action of the stapedius muscle by Wreden (namely, the production of intra-labyrinthine pressure by its contraction) is not only disproved, but is denied by later observers. That neither the facial nerve, the branch of that nerve passing to the stapedius muscle, nor the muscle itself, are directly acted upon by the galvanic current. Subjective symptoms were educed by the action of the galvanic current, when the contraction of the stapedius muscle was prevented.

We firmly believe that the auditory nerve can be excited by the galvanic current, if properly applied, and there is no resulting paralysis. We have performed numerous experiments upon our own ears, as well as other persons'. The mode of its impression, or the way that it is connected with that nerve, may be by the facial, for we know that there is in the internal auditory canal a few fascicles of fibres which constitute what Wresberg has termed the "portio-intermedialis," forming a connecting link between the auditory and the facial. Confirmation of the above has been given by means of the rods of König.

Blake finds that the passage of the current increases not only the limit of perception of musical tones, but also the intensity of perception. The degree of increase in intensity of perception being a measure of the degree in which the auditory nerve responds to the stimulus. We believe that the galvanic current is a most valuable auxiliary in the treatment of diseases of the ear, and must not be omitted, especially in cases of a nervous character, after all symptoms of disease of the external and middle ear have disappeared or been removed. Of the mode of application, which is of importance, and the kind of electricity* which is most useful, we are unable to enlarge at this time.

Medical Societies.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 7th, 1875.

Dr. S. S. Purple, President, in the Chair.

Dr. Taylor briefly reviewed the subject of his paper on the Treatment of Contracted Pelvis.

The President then stated that a discussion of Dr. Taylor's paper was in order.

Dr. Peasley said that there was great diversity of opinion on the subject; that he had been long acquainted with Dr. Taylor's views, and did not see how they could be controverted. He considered them the best, and would offer no question or opposition to such a practice.

Dr. Hanks related the following case: He was called to see a lady on Jan. 12th, 1869, who had been in labor for six hours. The head of the child was at the superior strait, and no progress had been made for four hours. The head of the child was delivered, by means of the forceps, at the end of two hours. The pelvis was contracted, and of the flat variety. Three months later she again became pregnant; he brought on labor and she was delivered of a dead child. Pregnancy recurred, and premature delivery at the eighth month was induced; the forceps were applied. The child lived for three days and died of inanition. The Doctor was himself called in consultation at a later period in this case; when he arrived the woman had been delivered of a dead child at term, and was dying of broncho-pneumonia.

A New Means of Diagnosis in Diseases of the Respiratory Organs.

Dr. Elsberg read a paper on the above subject. He said that pneumometry was a method of measuring expiratory and inspiratory force.

* A Clinical Manual of Diseases of the Ear. Laurence Turnbull, M. D. J. B. Lippincott & Co., 1872.

A century and a half ago Rev. Dr. Hills made investigations by breathing air into closed receptacles, the amount being measured by means of a column of mercury. These observations were the first ever made in that direction, and were published in a book in 1776. In 1844, Valentine, in a work on Physiology, published some researches; several other observers followed him, at intervals, but no practical results were arrived at until four years ago, Valdenberg having exhibited the pneumometer to his students eighteen months previous.

Dr. Elsberg showed the instrument and explained its use. It is composed of a glass tube, of uniform bore, bent upon itself, in the form of the letter U, open at both ends; it is attached to a metallic scale. This tube is filled, to the extent of several inches, with mercury. When this is level in either limb it registers 0, and from this point 125 millimetres are marked up and down on the scale. To one end of the pneumometer is attached a rubber tube, terminated either by a double nose piece, mouth piece, or mask for the face. The method of using it is to allow the patient to inspire or expire, and the amount of depression, in inspiration, of the column of mercury, or the amount of elevation, in expiration, registers the relative or absolute force. Pneumometry has been used in health, but only for physiological purposes, until within a few years. The result of Dr. Elsberg's observations were, that the average maximum of expiratory force in the healthy male adult was 68 millimetres, and the maximum inspiratory force 110 millimetres. In the female adult the maximum expiratory force was 90 millimetres, and the inspiratory 120. He fully confirmed the observations of Hutchinson, who found that in healthy individuals the degree of expiratory pressure was always higher by one-third than the inspiratory power.

Dr. Elsberg pointed out its usefulness in phthisis, emphysema, bronchitis, pneumonia, cardiac (valvular) affections, narrowing of the upper air passages, abdominal affections, and muscular atrophy and paralysis. Valdenberg says that he recognized emphysema in the incipient stage by means of the pneumometer. In conclusion, the Doctor said that pneumometry, like percussion and auscultation, only revealed various abnormal conditions, but not diseases; it determines expiratory and inspiratory power before any other sign can be discovered in emphysema; its importance cannot be doubted, and it should be accorded a prominent place in the diagnosis of disease.

The President called upon the committee who had drawn resolutions on the death of Dr. Swift.

Dr. Dalton, as a member of the committee, read the following:—

WHEREAS, The members of this Academy have learned with regret of the death of their former associate, Dr. Foster Swift, therefore,

Resolved, That in Dr. Swift the Academy and the profession have lost a member whose personal character commanded the esteem of those who knew him, whose brilliant talents gave sure promise of future distinction, and who was eminently fitted, by his superior attainments, his singleness of purpose, and his engaging manners, for a prolonged life of usefulness and success; also,

Resolved, That a certified copy of these resolutions be transmitted to the family of Dr. Swift, as an assurance of the sympathy of the Academy in his loss, and of their high appreciation of his personal and professional qualities.

It was moved and seconded that the above resolutions be adopted.

PROCEEDINGS OF THE OHIO VALLEY MEDICAL ASSOCIATION.

The fourth session of the Ohio Valley Medical Association met at Ironton, Ohio, October 13th, at 6½ P. M. The session should have been opened at 10 A. M., but in consequence of the very low water in the Ohio river, most of the members failed to arrive until very late in the afternoon The association was called to order by president A. L. Knight, of West Columbia, W. Va. The lecturer for the evening meeting of the laity with the profession failed to put in an appearance, and Dr. T. Curtis Smith was invited to entertain the audience, which invitation, so unexpectedly tendered, he reluctantly accepted, and gave a short address on, "The Relation of Infant Diet to Gastro-Intestinal Disorders and Infant Mortality." The association then adjourned, to meet at 8 A. M., on the 14th.

Second Day. Called to order by the president, Dr. A. L. Knight, who made a few timely remarks on the growth of this professional body, with some valuable suggestions in relation to its course of proceeding in the future. The chair then appointed, Drs. C. M. Finch, P. H. Clarke, and D. C. Wilson a committee on the admission of new members, and Drs. T. Curtis Smith, L. F. Roush, and W. A. Frizzel, committee on publication.

Dr. Smith offered the following as a substitute for Article VI, of the Constitution. "The meetings of this association shall commence on the first Wednesdays of May and November, of each year, and continue two days," which was accepted, to be called up at the next meeting. The committee on admissions recommended the following gentlemen for membership, viz:—W. T. Atkinson, Ashland, Ohio; A. J. Beardsley, Huntington, W. Va.; John Shattuck, Marion, Ohio; R. A. Vance, Gallipolis, Ohio; J. W. Matthews, John Morris, N. K. Moxley, W. R. Earhart, Ironton, Ohio; F. Hudson, Lyra, Ohio; J. O. Well, Huntington, W. Va.; John S. Henry, of Russel Place, Ohio; J. W. Winn, of Hanging Rock, Ohio; J. F. White, Lawrence Furnace, Ohio; all of whom were duly elected; Dr. J. C. Bishop, chairman of former committee on publication, made a report, which was accepted. The place of next meeting being taken up, Gallipolis, Ohio, was fixed upon, for the April session.

Sanitary reports were now made by R. D.

Jacobs, of Gallia Co.; A. W. Frizzel, of Sciota, Co.; J. W. Winn, of Lawrence Co.; and P. H. Clarke, of Mason Co.; W. Va., all of which were of interest, and led to the discussion of sanitary matters generally. By invitation, the members now went on an excursion, on the Iron R. R., to visit the vast Iron Works, a short distance above the city.

Upon returning to the City Hall (the place of meeting), the reading of essays and discussion of the same were taken up. Dr. P H. Clarke, of Mason, presented, for Dr. N. D. Tobey, of Clifton (who was absent), a paper on the "Abortifacient and Oxytocic Properties of Quinia," which was referred to committee on publication, and discussed by Drs. Smith, Binz, Frizzel, Vance, Bishop and others. Dr. C. M. Finch, of Portsmouth, O., then presented a paper on the subject of "Ear Cough," which was referred. Adjourned to meet at 1½ P. M.

Afternoon Session. Dr. T. C. Smith moved that a committee of three be appointed on Sanitary Science, with power to procure and present all needed interrogatory blanks, for distribution among members, who shall report to the chairman of the committee one month prior to its next session, in order to enable the committee to condense the reports and present them in proper shape at the next session. Carried.

Dr. R. A. Vance then presented a valuable volunteer paper on "The Differential Stethoscope, in the Diagnosis of Obscure Cardiac Diseases," for which a vote of thanks was tendered to the author.

Dr. T. C. Smith then read a paper on "Placenta Prævia," which was briefly discussed.

The President then appointed the following committees, to report at the next regular meeting, at Gallipolis, in April, 1876, viz:—

Popular Essayists on Progress of the Arts and Sciences—J. P. Binz, of Portsmouth Ohio; John Morris, of Ironton, Ohio.

Hygienic and Sanitary—T. Curtis Smith, R. A. Vance, J. R. Philson.

Surgery—A. B. Jones, J. O. Wall, A. B. Monahan.

Practice of Medicine—W. A. Frizzel, B. H. Hoyt, D. C. Wilson.

Obstetrics—C. R. Reed, A. J. Beardsley, W. R. Earhart.

Ophthalmic and Aural Practice and Surgery—C. M. Finch, W. W. Fierce, J. W. Winn.

New Remedies—J. S. Henry, N. D. Tobey, P. H. Clarke.

Indigenous Medicinal Plants of the Ohio Valley—R. D. Jacobs, G. A. Ewing, H. M. Leash.

Necrology—T. A. Harris, F. R. Eakins, F. W. Tierman.

Physiology—R. A. Vance, James Moore, D. C. Wilson, A. J. Beardsley.

Committee of Arrangements, all of Gallipolis, Ohio—Drs. R. A. Vance, Sands, Newton, Needham, Guthrie.

Dr. James Moore then presented a report on "Jaundice and its Causes," connected with the report of a very interesting case, where, at the post-mortem, fourteen large biliary calculi were found in the gall-bladder. Report received and discussed by Drs. Binz, Moore and others.

Dr. D. C. Wilson, of Ironton, presented a specimen of urinary calculi, passed by an infant eleven months old, with a very interesting history of the case.

Dr. Frizzel related a case of membranous croup, in a child two months old, treated by small doses of quinine. The report led to a brief but spicy discussion.

Dr. Matthews related a case of compound fracture of the tibia and fibula, with inward luxation at the ankle joint, in a boy 13 years old; briefly discussed. Case recovered with a fair limb.

Night approaching closely, now caused the hasty transaction of financial business, etc., when the association adjourned to meet at 8 P. M., with the laity and profession of Ironton, at Davis' City Hall, at a social reunion and festival prepared for the association. The affair was very enjoyable, and the profession and people did well at entertaining their guests. S.

Editorial Department.

Periscope.

The Treatment of Aneurism.

The editor of the London *Medical Times and Gazette* says, of the treatment for aneurism:—

Of late years, a method to which there can be no possible objection—for it can do no harm—has been making its way especially, again under the auspices of our Irish brethren, and of this we are forcibly reminded by the appearance of the second edition of Mr. Joliffe Tufnell's little treatise on the Treatment of Internal Aneurism. When, some time ago, this gentleman read a paper on the subject before the Royal Medical and Chirurgical Society in London, the impression it made was very deep, but here, in his work, we have ampler details, and to these we would now briefly refer.

The examination of cases where an aneurism has become completely consolidated, and practically healed, shows that this has been accom-

plished by the laying down of successive layers of fine fibrine on the wall of the sac, thus gradually adding to its thickness and strength until something like safety has been attained. What are the conditions of this deposit, and how shall we best imitate them artificially? For the formation of fibrine it is probable that a good dry diet would suit best; for its deposit, diminution in the strength and fullness of the blood-current. The diet should be good but not bulky; dry, that the quantity of blood should not be too suddenly increased, as must happen after a deep draught of any fluid. Then the strength and rapidity of the blood-current may be lessened by diminishing the necessity for a strong and rapid one—by keeping the body nearly horizontal and as nearly as possible at absolute rest.

Such are the principles of procedure. Now let us see how Mr. Tufnell carries them out. As to diet, in the twenty-four hours he gives ten ounces of solid food and eight ounces of fluid, and *no more*. For breakfast, two ounces of bread-and-butter and two ounces of milk or cocoa; for dinner, three ounces of cooked meat, with three ounces of bread or potatoes, and four ounces of water, or light claret; for supper, the same fare as in the morning. When thirst is very troublesome, a small piece of ice to suck gives relief. Such is the bill of fare; but it is not absolute, and may, we are quite sure, be departed from, though not, perhaps, with advantage.

Next, as to rest. Here the rule is absolute, but it is even more difficult to enforce than the other. The recumbent posture should be kept, for, perhaps, two months or more, and it requires a man at once intelligent and strong of mind to appreciate this necessity and rigidly to carry out the rule. Here, indeed, is the rock on which we commonly break down. A patient comes to the hospital suffering severely from the effects of an aneurism; he is placed in a proper attitude, and enjoined to keep himself absolutely quiet. This he will do for a time, but by-and-by his pains depart, he feels nothing the matter with him, and he can no longer be persuaded to lie quiet. He probably insists on getting up, he leaves the hospital, but only to experience a speedy and lamentable relapse. This experience applies, if possible, still more frequently to women than to men. For this restlessness there is nothing like morphia subcutaneously.

Tobacco in Relation to Health.

Dr. Richardson, F.R.S., recently delivered a lecture on this subject. After speaking of the introduction of tobacco to Europe, and its enormous consumption at the present time, the lecturer said: The nature of the luxury forms a subject of discussion on which the extremest views prevail. On one side tobacco has been held up as the most harmless of luxuries; and on the other side it has been denounced as the originator, not only of mere functional, but of some worst forms of organic diseases. Following out the researches made by himself, he showed the constituents of tobacco smoke and their results upon the human body, and pointed out the effect exerted by different kinds of tobacco. Speaking of the influence of smoking on the mental faculties, he said: When mental labor is being commenced indulgence in a pipe produces in most persons a heavy dull condition; but if mental labor be continued for a long time, until exhaustion is felt, then the resort to a pipe gives to some *habitués* a feeling of relief; it soothes, it is said, and gives new impetus to thought. This is the practical experience of almost all smokers; but few men become so habituated to the pipe as to commence well a day of physical or mental work on tobacco. Dr. Richardson carefully discussed the question whether the practice of smoking could be considered, fairly, as a cause of those fatal diseases, consumption, cancer, and apoplexy. The argument, he stated, was conclusive against this extreme view. The same conclusion was arrived at in respect to insanity, epilepsy, St. Vitus' dance, heart disease, and chronic bronchitis. At the same time, immoderate smoking cannot be carried on without danger, sometimes even to life itself.

Treatment of Hydatid Disease of the Liver.

The prevalent belief that simple tapping of a hydatid cyst in the liver is sufficient for its radical cure, owing to the death of the echinococcus following the escape of its fluid contents, is not entertained by M. Verneuil, the eminent surgeon attached to the Hôpital de la Pitié (*Revue de Thérapeutique Medico-Chirurgicale*, August 15th). He believes that the remains of the cyst acting as a foreign body, if they do not suppurate themselves, yet set up suppuration in their vicinity. Recognizing also the danger of peritonitis from escape of the hydatid fluid into the abdominal cavity, he does not adopt the so-called method of Recamier—viz., external application of caustic—nor other means of promoting adhesion; but he begins by puncturing the most prominent part of the cyst with a large trocar and canula. He then introduces through the canula a large gum-elastic catheter. Adhesions take place between the visceral and parietal peritoneum, and, there being constant means of escape, there is no retention of the fluid. Repeated injections of disinfectants, as solutions of carbolic acid or alcohol, are made into the cyst, the walls of which are thus allowed to slowly contract.

Palpitation of the Heart in Epilepsy.

Dr. William L. Lane writes to the *British Medical Journal*:—

The following cases are somewhat interesting, in showing how palpitation of the heart may be due to a cause hitherto unobserved, viz., epilepsy.

Case 1. Michael B., aged 42, a strong

healthy man in appearance, has been complaining for the last three years of a constant pain at the cardiac region, which is not increased by pressure, and is accompanied by a strong impulse of the heart This pain and beating, which are never entirely absent, get more severe upon any excitement or exertion. The pulse is 78 a minute, and strong. The heart has no valvular lesion nor any hypertrophy, although its impulse is stronger than normal. Lately, that is, within the last eighteen months, he has had some attacks of epileptic vertigo, and two or three severe fits of epilepsy (*grand mal.*) He describes the attacks of epileptic vertigo, or, as he terms them, attacks of "giddiness," thus: the beating of the heart and the pain over it, which are worse than usual for a day or two before the attack of giddiness, suddenly, a few seconds before the attack, become much worse; he then fixes his eyes upon a spot from which he cannot move, loses his senses, staggers, or falls down, and then immediately recovers consciousness (the attack altogether does not last longer than a quarter or half a minute), feeling his head sore and his memory confused. The beating and the pain, which I stated as being more troublesome some time previously to the attack, continue so for some hours after it.

Case 2. William B., aged 31, is a healthy strong man; his aunt was epileptic at one time; her son (his cousin) is a great epileptic. William B 's father was insane at one time. William B. has never had any fits. He complains of an uneasy pain in the cardiac region and a strong beating of his heart. He feels very anxious about his condition. I examined his heart with the utmost care, and found it healthy in every respect There is no tenderness upon pressure over the cardiac region, but the cardiac impulse is stronger than normal. The pulse is strong, and 72 a minute. Respiration is normal. His appetite is good. His bowels are open regularly. The pain and cardiac beating are worse at times, and are aggravated by mental excitement or bodily exertion.

Case 3. Mrs. D., aged 50, who has a strong and healthy appearance, has been suffering from a beating of the heart and a pain at the cardiac region for the last twelve months. The heart's sounds and size are normal, but its impulse is stronger than normal. A few days ago, while she was at the railway station here, apparently in excellent health, she had a fit and fell upon the ground. Her face was severely hurt by her fall. She states that lately she has a few attacks of dizziness (most probably epileptic vertigo), which pass away very quickly. Her appetite is excellent; her bowels are regular. She has ceased menstruating since she was forty-seven years old.

Remarks.—The predominant symptoms in these cases are the cardiac pain and the strong cardiac impulse, and the feelings of anxiety which these symptoms cause the patients. I may say that they have consulted various medical men in this district and Edinburgh for their palpitation, without any benefit. Cases of this kind, which are by no means uncommon, differ from cases of palpitation which we usually meet, in many respects. 1. The heart's action is not accelerated, nor is it irregular. 2. The causes which produce palpitation, such as anæmia, indigestion, excessive smoking, alcoholic or tea drinking, could not be discovered in these. 3. The cases occur in individuals strongly predisposed to or suffering from epilepsy. I have often thought that the name "mild angina pectoris" would be a very appropriate one for cases like these, on account of the symptoms somewhat resembling angina pectoris, but being a great deal less severe. I may say that cases of this kind are generally unbenefited by any of the remedies, such as bromide of potassium, belladonna, etc, that I have used or seen others use.

Reviews and Book Notices.

BOOK NOTICES.

On Poisons in Relation to Medical Jurisprudence and Medicine. By Alfred Swaine Taylor, M.D., F.R.S., etc. Third American, from the third and thoroughly revised English edition, with 104 illustrations. Philadelphia: Henry C. Lea, 1875. 1 vol., sheep. 8vo, pp. 788.

This standard treatise has been so long regarded as an authority, by both professions to whom it is addressed, here as well as in England, that its merits need no formal endorsement. The present edition has undergone a thorough revision, which brings its contents down to the summer of the present year. Several chapters have been added, and the views which further investigation has led the author to doubt have been modified or omitted. The last two sections of the work, on cerebro-spinal and cerebro-cardiac poisons, are particularly noticeable for the large amount of new matter they contain, and its forensic importance.

It is gratifying to notice that the learned author has given ample credit to the studies of Dr. Wormley, Professor Reese, and other students of his branch in this country. We observe that the author mentions the singular discrepancy in the alleged results of lead washes to the skin. Why lead washes in cutaneous disorders, and the acetate internally, do not give rise to plumbism, but that hair restorers containing lead do (?) is a contradiction he recognizes (p. 403) but does not explain.

The work is well manufactured, the typography and paper being excellent.

THE

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THE METRIC SYSTEM OF WEIGHTS AND MEASURES.

We are sincerely gratified to note that there is an increasing probability of the adoption of the metric system of weights and measures in this country. The two changes in the prescribing of medicines which the REPORTER has long and earnestly advocated, are the doing away with the "dog-latin" now used in writing recipes, and substituting in place of it grammatical English; and, secondly, the abolition of the effete standards of quantity known as "apothecaries' weights." There is not a single objection of any moment which has ever been urged against either of these reforms, and the arguments in their favor are numerous and strong.

What, then, prevents their immediate adoption? First, the supineness and indifference of medical teachers, too indolent to learn and teach the new notation; secondly, the interest publishers have, and, through them, authors, in keeping old sets of plates, which would be less valuable were the notation changed; thirdly, the opposition of the less intelligent pharmacists, who are afraid of a change which would involve some intellectual effort to master; lastly, the medical profession itself has an amount of conservatism which is ever an obstacle to recognized progress.

All these elements of opposition are lessening, and we appeal to the profession in the United States to celebrate the year 1876, "the centennial anniversary" of our country, by the adoption of the decimal system.

A recent number of the Boston *Medical and Surgical Journal* contains an excellent editorial on the system, urging the members of the medical profession to act promptly and co-operate with the rest in the general movement to introduce the system into our country, as well in every branch of business, as it already has been introduced in science; and the very great interest felt in the subject by members of the profession at large shows that they are not destined to be behindhand in the good work. The Pharmaceutical Association has, as we have seen by the late reports of its proceedings, in the REPORTER, also taken steps in the right direction, and everywhere the movement meets with hearty encouragement.

Few realize the extent to which the Metric System has already been adopted in the United States. Made legal by Congress in 1868, its use among scientific works is very general. It is used by the United States Coast Survey, the greatest of our public works. It is used in our most important college laboratories. It is used altogether by our analytical chemists, and largely by our physicians, and by all those who have dealings with foreign countries. The decimal subdivision of the foot is used by our engineers. The International Statistical Congress has adopted the Metric System. The International Social Science Association has adopted it, and exerts its great influence throughout every corner of the civilized world to render it uni-

versal. Other international conferences have been often called together for the special purpose of establishing this system in every land. Finally, the American Metrological Society, a body of learned and public spirited men, has been formed for the purpose of promoting the public welfare in this important particular.

Notes and Comments.

Salicylate and Carbolate of Quinine.

The *Chemist and Druggist* says that, in opposition to a statement by Schering, in the *Pharmaceutische Zeitung*, that salicylic acid forms, with quinine, a salt which is insoluble in water, soluble in alcohol, and not crystallizable, Julius Jobst, of Stuttgart, in a communication to the *Neues Rep. für Pharmacie*, says that an aqueous solution of quinine hydrochloride gives, with ammonium salicylate (from Kolbe's salicylic acid), a caseous precipitate, which may be obtained from alcohol, in beautifully formed prisms grouped compactly together. The same compound is obtained when an alcoholic solution of quinine is treated with a completely saturated alcoholic solution of salicylic acid, and the spirit allowed to evaporate slowly. Quinine salicylate is anhydrous; to Jobst's analysis, it yielded the formula $C_{20}H_{24}N_2O_2$, $C_7H_6O_3$. To estimate the quinine, the salicylate was dissolved in a little water containing dilute hydrochloric acid, and treated with ammonia. The precipitate was collected in a filter, and the alkaloid dissolved in the ammoniacal filtrate recovered by means of ether. In two experiments, 69.66 and 70.17 per cent. of quinine respectively were obtained, as against 70.12 per cent. required by the above formula. Quinine salicylate dissolves in 225 parts of water at 16°, in 20 parts of alcohol of 90 per cent., by volume at 13°, and in 120 parts of ether at 16°. Seeing that salicylate of quinine could be so easily crystallized from water, it occurred to Jobst that it might be used in place of the carbolate, which for some time has been in fair demand for medical purposes, though it has hitherto been met with in pharmacy only in a pulverulent form, and of varying composition and properties. He finds, however, that the carbolate of quinine may be obtained in delicate, needle-shaped crystals from water, as well as from alcohol. Dried at 130°, the carbolate, on analysis, yields numbers corresponding to the formula $C_{20}H_{24}N_2O_2$, C_6H_6O. It dissolves in 400 parts of water at 16°, in 80 parts of alcohol of 90 per cent., by volume, and in smaller proportion in ether. Assuming that the therapeutic properties of the two salts are similar, the preference should be given to the salicylate, on account of its greater solubility, but in any case only the invariable crystallized form of carbolate of quinine should be employed in medicine.

Alterations of the Brain in Typhoid and Typhus Fevers.

Dr. Leo Popoff, of St. Petersburg, has lately examined microscopically the brains of twelve individuals who had died of typhoid fever, and in all he found changes of an acute inflammatory character, involving not only the walls of the blood-vessels, but also the neuroglia and the ganglion cells. There is proliferation of the elements which form the coats of the vessels, accompanied with a deposit of fat and pigment. The neuroglia is infiltrated with young cells, due to the repeated subdivision of its nuclei, and the ganglion cells are not only surrounded with wandering cells, which fill the so-called pericellular spaces, but are also penetrated by them. At the same time the nuclei of the ganglion cells undergo division, and the ganglia may become filled with smaller cells, which fall out in the course of microscopic preparation, leaving a number of perforations in the section. Wandering cells are found, not only round the ganglion cells, but also along the course of the vessels and the nerve fibres, but they are most numerous close to the ganglia.

The Marriage of Blood-Relations.

Dr. Helliot has written a very interesting thesis on this subject (*De l'Influence de la Consanguinité*, Delahaye, Paris). In his conclusions, he rejects marriage between blood-relations up to the degree of cousin-german inclusively. The bad effects of consanguinity increase in proportion as the degrees of relationship approximate; and he afterward cites some cases of incest, whence there originated beings whose cerebro-spinal system was absolutely defective. M. Helliot has taken great pains to show to what extent the partisans of consanguinity have perverted the facts of statistics to their advantage. He has shown that

good results may occur in spite of consanguinity, but not as a consequence. The example of the Jewish race, so often quoted, is a bad one, since, according to M. Helliot, there is a remarkable predominance of deaf-mutism among that nation, an affection which is the most ordinary result of consanguinity. A defective argument has likewise been drawn from the breeding of animals, since, in that instance, breeding, by bringing together all the conditions favorable to the development of the individual, specially ends by creating a kind of artificial creature, in which certain excellencies of flesh or of swiftness predominate, but which cannot be considered as a creature worthily representing the qualities of the species Adverse statistics, and the most remarkable figures, are to be found in the writings of Boudin, which have been the foundation for nearly all other writers on the same subject. A large part of his work is devoted to the relation of cases which have come within his own knowledge, as well as of others borrowed from various writers. He remarks that individual observation has much value, often more than an inquiry quickly made in a given country. He concludes by deciding that there is no favorable degree of consanguinity.

Dosage of Medicines.

In the section on Posology, in his useful little handbook on the art of prescribing, Dr. Handsel Griffiths says:—"No greater service could be performed by the colleges or the great medical societies, than the formation of a committee of competent men for the special investigation of the question of dosage; for it is a subject which is as yet only in its infancy, and the best knowledge which exists about it is undoubtedly confined to a very small section of the medical profession." The suggestion appears to us to be one of importance and interest.

The Brunetti Method,

By which Mazzin's body was recently embalmed, consists of several distinct processes. First, the circulatory system is cleansed thoroughly, by washing with cold water till it issues quite clear from the body. This may occupy from two to five hours. Then alcohol is injected, so as to abstract as much water as possible. This takes about a quarter of an hour. Ether is then injected, to abstract the fatty matter. This occupies from two to ten hours. A strong solution of tannin is then injected. This occupies, for thorough imbibition, from two to ten hours. The body is then dried in a current of warm air passed over heated chloride of calcium. This may occupy from two to five hours. The body is then perfectly preserved, and resists decay, and the Italians exhibit specimens which are as hard as stone, and retain perfectly every detail of form and feature.

The Limits of Microscopic Power.

Professor Abbe, of Jena, asserts that the limit of a microscope, in showing the structure of the tissues, and the character of minute objects, has now been nearly, if not entirely, reached—higher power than at present in use giving rise to optical phenomena which are likely to completely mask the structure and nature of the object under examination. These observations apply more especially to the marking of certain diatoms and striated muscular fibre. According, however, to the results arrived at by Professor Abbe, after prolonged and very careful investigations of the subject, by no microscope can structural parts be distinguished if they are so near to each other that the first bundle of light rays produced by diffraction can no longer enter the object simultaneously with the undiffracted cone of light.

The Sunflower as a Preventive of Miasma.

A correspondent of the *Soil of the South*, writing from a place in Alabama, which he says was peculiarly subject to fevers, gives the result of his experience in the premises, and in not a single instance where he planted sunflowers around his negro cabins did their inmates suffer from fevers, while his wife, two children, and two house servants, all had fevers, he not having planted any of the sunflowers around his own dwelling, which, in his opinion, accounts for the difference in the results.

Baldness.

In the *Klin. Woch.*, Dr. Pincus recommends weak alkaline washes to arrest baldness. Solution of potash (1 to 500) or of its bicarbonate (15 grains to the ounce), may be employed, two or three drachms being well rubbed into the scalp daily, and after a time less frequently. He continues the treatment for a year or more.

Correspondence

The Use and Abuse of Opium.

Ed. Med. and Surg. Reporter:—

Will you allow me, through the medium of your columns, to draw the attention of my medical brethren to the use and abuse of two of our most valuable therapeutic agents, morphine and opium. I am grieved to find that physicians possessing a supposed liberal education, and knowing full well the terrible effects of the continued use of the above named drugs, prescribe the same in the most reckless manner. I use the word reckless because I am bound to believe, from actual facts before me, that the above drugs are constantly prescribed for every simple ache or pain coming under their professional notice. In this village, possessing a population of certainly not more than ten thousand, and I believe, not even nine thousand, the quantity of morphine and opium consumed every year is simply appalling, being no less than the following:—

Morphia sulph., 1928 drachms.
Gum opium, 2296 ounces.
McMunn's elixir, 4680 bottles.

Or, as near as I can make it, for each inhabitant, taking the population at ten thousand.

Morphia sulph., 11.51 grains.
Gum opium, 111.2 grains.
McMunn's elixir, 211.10 minims.

I can count, within a radius of half a mile from my office, no less than a dozen morphine and opium eaters, and I am assured by the majority, that morphine was prescribed for their use by their attending physician, for some slight internal pain, and ordered to be continued whenever the pain returned. With the exception of one, or, perhaps, two cases out of the above, no chronic disease exists, except such as has been produced by the drug itself. Now, Mr. Editor, will you raise your editorial voice against this terrible crime, for crime it certainly is, to utterly destroy both body and soul of these poor victims? could you see them, sir, I am sure you would do so at once. Several of them have sold every article of any value they may have possessed, to purchase the drug, and, as you may well imagine, continue in most mortal agony if kept without, only for a short time, their accustomed stimulant. I would have written much more forcibly, but prefer leaving the matter in your hands, feeling assured that the facts I have here stated will procure not only yours, but the just condemnation of every thoughtful physician. In conclusion, please allow me to thank the following gentlemen, in this village, who have placed these statistics at my disposal—Mr. James Mingay and Dr. C. E. Gates.

Three other gentlemen own stores in this village, but refuse to give me any statistics whatever; yet I am perfectly safe in computing each of their sales equal to the largest amount sent in by one of the other gentlemen.

Charles C. Cranmer, M. D.

Saratoga, Oct. 29th, 1875.

[By a coincidence, this very subject had been brought to our notice from several sources within a few days before the receipt of the above letter, and an editorial on the subject was already upon our desk. It will appear next week. Ed. Reporter.]

A Freak of Nature.

Ed. Med. and Surg. Reporter:—

I send you an account of an elephant pig. The facts, as related by Mr. Baxter, are these:—A gentleman by the name of Lysle Casey, living on the road leading from Richmond to Lancaster, Kentucky, owned a sow that had, not long before, taken the boar. On the 5th day of May, 1875, the great international circus and menagerie was passing the road. The sow was on the pike. The elephant came near her before she saw it. The sow was very much frightened, and ran into a pasture near by. At a reasonable time the sow littered eight pigs, six of them perfect. One had a proboscis and head like an elephant, with ears like an elephant, and a small mouth under the snout; the fore-legs very long, and the hind legs very short, with feet resembling more the elephant's foot than a pig's. The pig lived a short time, and then died. It is now in my office, preserved in alcohol, the property of Mr. Barfield, real estate agent. The other pig was very much decayed, but had four tusks, two inches long. These facts can be fully verified here.

J. W. Bright, M. D.

Lexington, Ky.

News and Miscellany.

Philadelphia County Medical Society.

The next conversational meeting of the Society will be held Wednesday, November 10th, eight o'clock, P.M., at the Hall of the College of Physicians, 13th and Locust streets. Dr. Welch will read a paper; subject, "Are Croup and Diphtheria identical?" The medical profession are cordially invited.

Holmes Co. (Pa.) Medical Society.

An adjourned meeting of the Holmes County Medical Society was held in Millersburg, in Town Hall, Tuesday, Oct. 5. Nearly all the physicians of the county were present. A very interesting paper was read by Dr. S. P. Wise, on "Measles and Scarlatina," and was freely discussed by members of the Society. After which, the following preamble and resolutions

were offered by Dr. J. Pomerene, and unanimously adopted:—

Whereas, The members of this Society, and others of the regular profession, have been in the habit of meeting, in consultation, quacks and charlatans, who exhibit to the people a diploma from a fraudulent institution, established for the purpose of making merchandise of diplomas to the illiterate; and

Whereas, Said persons present themselves to the public as equals to the members of the regular profession, who have obtained the honors of their respective institutions by diligence and close application to the study of all the branches pertaining to the science of medicine and surgery; and

Whereas, The recognition of charlatanism lowers the standard of the regular profession, robs it of its dignity, honor, and usefulness among the laity, as well as lowers the standard character, etc., of those who are proposed and qualified to take a stand among the honored ones of the profession; therefore,

Resolved, That we will not, under any circumstances whatsoever, consult with or recognize any one but those of the regular profession.

T. J. GUITTARD, M.D., *President*,
GEO. W. LORE, M.D., *Secretary*.

Germantown Flower Mission.

The ladies of the Mission held their last meeting of the season on Tuesday, October 19. The reports of the work for the season are as follows:—From May 18 to October 19, 1893 bouquets, besides a number of potted plants and fruit, which were distributed among the different hospitals and to general uses.

Items.

—The only objection to being hung which Brown, the St. Louis murderer, expressed, was the dread of dissection. His counsel asked him, can you say you are ready to die? He replied, if my folks would get my body I would not care. I do not want the doctors to have it. There has been a doctor here, feeling my muscles. His counsel said, I will see that the doctors shall not have it.

—A profossionally objectionable Chinese custom was carried out at Hong Kong recently. A native died, and his physician, also a native, was bound to the corpse until it was placed in the coffin. He was released, however, after enduring this punishment for his lack of skill for some time, upon the payment of a considerable sum to defray all the funeral expenses.

—The number of students at the Vienna University was 3917 in the last enumeration, 298 of them being foreigners, mostly medical students or physicians, who have their diplomas from their home institutions. During this winter 129 professors, 76 other lecturers, 33 assistants, and 6 teachers will lecture, having 13.75 hours a week.

—Sir Charles Bell, surgeon of Middlesex Hospital, was one day describing to a barber who was shaving him a patient's unsuccessful attempt to cut his own throat, and, on the barber's request, pointed out the anatomy of the neck, showing how easily the act might be accomplished. Before the shaving operation was completed the barber had left the shop and cut his own throat, according to Sir Charles Bell's exact instructions.

—The *Press*, of this city, in an article on the House of Correction, hits the local profession rather hard. It says:—A number of very fine physicians have been committed to the institution, and a few have entered it of their own accord, to escape the possibility of obtaining liquor. Several of these representatives of the medical fraternity have completely reformed. We hope so.

—In St. Mark's Library, of Venice, there is a manuscript of notes on medical subjects, in the handwritting of John Locke, who, it is known, once intended to practice medicine, but was very much averse to having it known.

—The artificial eyes made by L. Mueller, advertised in this journal by Dr. Theo. Roth, are decidedly the most natural and perfect we have ever seen. They contain no lead or other irritating matter.

Personal.

—Dr. R. G. McWilliams, of Bethany, La., one day last month, placed a bottle on his head, and insisted upon some of his friends shooting at it. One or two shots were fired without any serious result, but finally a Mr. Stephens fired, but missed the bottle, and shot McWilliams in the head. He fell, remarking that it was a bad shot and he was killed, but that he did not blame Stephens.

—Dr. W. H. Pile, of Philadelphia, the well-known manufacturer of hydrometers, was very seriously injured by the explosion of a mixture of phosphorus, nitric acid, and bromine, with which he was trying to make phosphoric acid, according to the process recommended by Professor Markoe, of Boston.

—Dr. David Creel, probably the only surviving member of the jury which tried Aaron Burr for treason, is, at present, a resident of Chillicothe, Ohio, and enjoys excellent health, though over ninety years old.

—Dr. Charles S. Turnbull, whose letters have interested our readers during the past year, has returned from Europe.

—Dr. F. Woodbury has been appointed Recording Secretary of the Philadelphia County Medical Society.

—Our esteemed contributor, Dr. Ralph M. Townsend, has returned from Europe, in restored health.

—Prince Gortschakoff is trying the "grape cure," in Switzerland.

—In the Chicago Medical College, the chair of Hygiene has been made vacant by the resignation of Professor Thos. Bevan. Professor H. A. Johnson, having resigned the chair of Diseases of the Respiratory and Circulatory Organs, has been made a professor of Clinical Medicine.

—In Rush College, the chair of Anatomy, made vacant by the retirement of Professor R. L. Rea, has been filled by the election of Dr. Charles T. Parkes, the Demonstrator of Anatomy.

—Dr. Robert T. Edes has been appointed professor of Materia Medica at the Harvard Medical School, and Dr. William L. Richardson instructor in clinical midwifery.

QUERIES AND REPLIES.

Nasal Catarrh.

MR. EDITOR:—I would be glad to learn what remedies you have found of greatest value in chronic nasal catarrh. The books do not say much about it, and by the majority of country practitioners it seems imperfect'y understood, and such cases prove very troublesome. I hope some of your correspondents who have had experience in the treatment of this disease will publish an article in the REPORTER. Very truly, H. C. FERGUSON.

Dr. J. D. T.—Sinapisms in urticaria have not been generally used. It is a new treatment.

OBITUARY.

DR. DANIEL EGBERT,

Medical Director of the United States navy, died on Sunday evening, October 24th, aged 77 years, from an attack of pneumonia. Deceased was one of the oldest surgeons in the United States navy, having entered the service as an assistant, August 21, 1829. Dr. Egbert was a native of this city, and was appointed to the medical service of the navy from this State. His name stood tenth on the list of Medical Directors on the Retired List. On the 21st of December, 1861, he was retired as surgeon, the rank of Medical Director being conferred subsequently. During his active service he spent thirteen years at sea. Since his retirement he had resided at No. 1335 South Broad street, where he died

DR. EDWARD WALLACE,

Whose death is announced below, was born in Lancaster county. After practicing medicine near Churchtown, he removed to Reading, where he established a large practice. During the first administration of President Lincoln he was appointed Naval Officer in this city, holding the position until Andrew Johnson's accession, when he returned to Reading, continuing to reside there until about two years ago, when he again removed to this city, and became an attending physician at the Presbyterian Hospital, in West Philadelphia. He was a member of the Philadelphia County Medical Society (being Second Vice President), the Obstetrical Society, of Philadelphia, and the American Medical Centennial Association.

MARRIAGES.

ANDREWS—BEIDLER. SHEARER—BEIDLER.—At the residence of the brides' parents, October 7th, by the Rev. S. M. Andrews, Miss M. Maggie, and R. H. Andrews, M. D., of Kulpsville; and by the same ceremony, Benjamin F. Shearer, of Dublin, formerly of Doylestown, to Miss Lizzie, daughters of Nathan Beidler, of Bedminster, Bucks county, all of Pennsylvania.

BIRCKS—RICK.—On October 12th, 1875, at the residence of his uncle, Rev. B. S. Small, Greenwich, Berks county, Pa., Dr. Jacob B. Bircks and Miss Annie M. Rick, both of Philadelphia.

BURNS—WAGNER.—On the 14th of October, at the residence of the bride's parents, by the Rev. Thomas Murphy, D. D., Dr. R. Bruce Burns, of Frankford, and Linnie, daughter of Jacob F. Wagner, of Philadelphia.

HUNT—EMERY.—In Barre, Vt., September 28th, at the residence of Mr. Webster, by Rev. P. H. Carpenter, Chauncey Hunt, M. D., of Worcester, and Jennie F. Emery, of Berlin.

MUHLENBERG—SNODGRASS.—On Thursday, October 21st, 1875, at No. 2103 Walnut street, by the Rev. F. A. Muhlenberg, D. D., Frank Muhlenberg, M. D., and Ada F., daughter of the late William T. Snodgrass.

NEVIN—FOX.—In Easton, Pa., on September 30th, by the Rev. Louis R. Fox, assisted by Rev. Jacob Weidman, Dr. Joseph P. Nevin, formerly of Shippensburg, Pa., and Eliza W., daughter of E. J. Fox, Esq., of Easton, Pa.

ROWLAND—WEAVER.—On the 12th inst., at the Methodist Episcopal Church, Media, Dr. Frank Rowland and Miss Annie Weaver, both of Media, Delaware county.

SCOTT—GENUNG.—At White Plains, Wednesday, October 13th, at the residence of the bride's parents, by Rev. V. M. Hulbert, uncle to the bride, W. J. Scott, M. D., and Lucy A. Genung, daughter of Rev. B. F. Genung, both of White Plains.

STREETS—WALKER.—By Friend's ceremony, Ninth month 7th, at the residence of the bride's mother, Thomas N. Streets, Assistant Surgeon U. S. N., and Priscilla, daughter of the late Thomas A. Walker, of Chester Valley, Pa.

DEATHS.

ANDERSON.—In New York city, on Monday, October 18th, Euphemia C. Anthony, wife of James Anderson, M. D., in the 74th year of her age.

CLARK.—In Camden, October 16th, Dr. Charles F. Clark, aged 75 years.

GREENE.—On the 10th inst., after a protracted decline, Mrs. Anna D. Greene, wife of Charles Greene, M. D.

JONES.—In New York city on Monday, October 18th, of apoplexy, Helen, wife of William W. Jones, M. D., and daughter of the late Andrew Bache.

LEAKE.—At Frankford, this city, at the residence of her father, on the morning of the 15th inst., Martha W., daughter of Dr. E. F. and Sarah C. Leake.

LEFEVRE.—In this city, on the 20th inst., Dr. Joseph H. Lefevre, aged 52 years.

RAYMOND.—On the 12th inst., at his residence in Flora, Ill., of hemorrhage of the lungs, P. J. Raymond, M. D., in the 38th year of his age.

SIMONTON.—At St. Paul, Minn., on the 2d inst., of chronic pneumonia, Isabella Chandler, wife of Dr. T. D. Simonton, aged 33 years.

TOOTHAKER.—On Sunday morning, October 17th, of diphtheria, Zetta Eunice, only daughter of Dr. Charles E. and Zetta E. Toothaker, aged 4½ years.

WALLACE.—In Philadelphia, Oct. 28, Dr. Edward Wallace, in the 61st year of his age.

WILLIAMS.—In Rome, Italy, April 3, Rev. Frederick W. Williams, only son of the late Dr. Merrill W. Williams.